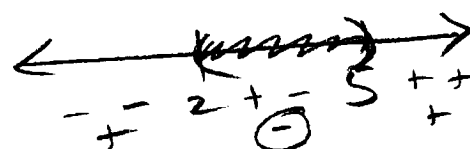


Unit 10 Day 4 p147-8: 25, 26, 60, 61, 71-78 (All)

(25) Break-even means $R \geq C$
 $R = 60x$ $C = 50x + 5000$
 $R \geq C$
 $60x \geq 50x + 5000$
 $10x \geq 5000$
 $x \geq 500$
 $[500, \infty)$

(26) $R \geq C$ $R = 500x$ $C = 100x + 6000$
 $500x \geq 100x + 6000$
 $400x \geq 6000$
 $x \geq 15$
 $[15, \infty)$

(72) $(2, 5)$



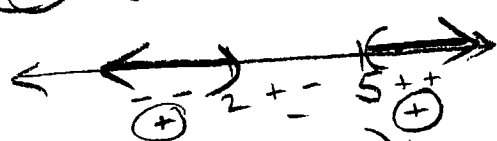
$(x-2)(x-5) < 0$

$x^2 - 7x + 10 < 0$

(60) A, E

(71) $(-\infty, 2) \cup (5, \infty)$

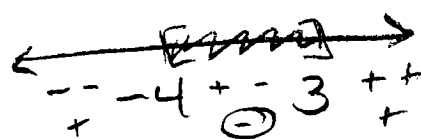
(61) D, F



$(x-2)(x-5) > 0$

$x^2 - 7x + 10 > 0$

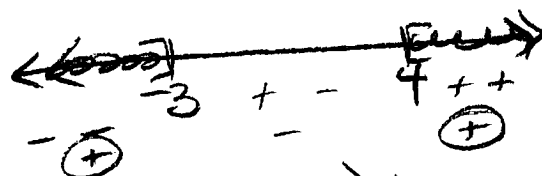
(73) $[-4, 3]$



$(x+4)(x-3) \leq 0$

$x^2 + x - 12 \leq 0$

(74) $(-\infty, -3] \cup [4, \infty)$

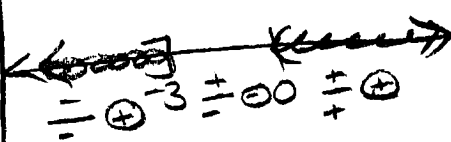


$(x+3)(x-4) \geq 0$

$x^2 - x - 12 \geq 0$

(75)

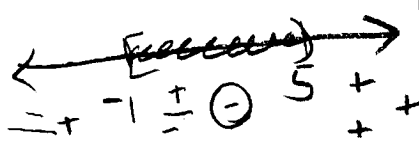
$(-\infty, -3] \cup (0, \infty)$



CV -3 0
 $x+3=0$ $x=0$

$\frac{x+3}{x} \geq 0$

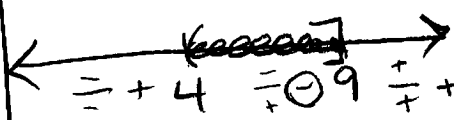
(76) $[-1, 5)$



CV $-1, 5$

$\frac{x+1}{x-5} \leq 0$

(77) $(4, 9]$

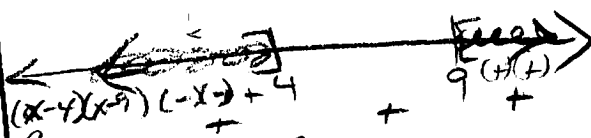


CV $4, 9$

$\frac{x-9}{x-4} \leq 0$

(78)

$(-\infty, 4] \cup [9, \infty)$



CV $4, 9$ can't put either in denominator
 $x-4$ $x-9$

$\frac{(x-4)(x-9)}{a} \geq 0$ $\frac{(x-4)(x-9)}{a} \leq 0$
 when $a > 0$ when $a < 0$

Unit 10 Day 4 Extra Problems

Use the discriminant to find the value(s) of K such that the given quadratic will have only real solutions.

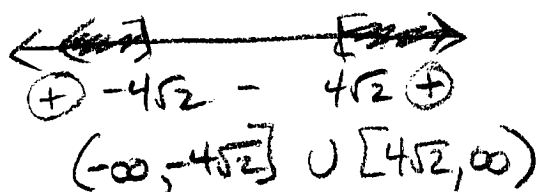
① $x^2 - Kx + 8 = 0$
 $a=1$ $b=-K$ $c=8$

$$b^2 - 4ac \geq 0$$

$$(-K)^2 - 4(1)(8) \geq 0$$

$$K^2 - 32 \geq 0$$

C1 $K^2 - 32 = 0$
 $K = \pm\sqrt{32}$
 $K = \pm 4\sqrt{2}$



② $x^2 + Kx - 5 = 0$
 $a=1$ $b=K$ $c=-5$

$$b^2 - 4ac \geq 0$$

$$(K)^2 - 4(1)(-5) \geq 0$$

$$K^2 + 20 \geq 0$$

$\rightarrow K^2 \geq -20$
 Always true

All Real #s
 $(-\infty, \infty)$

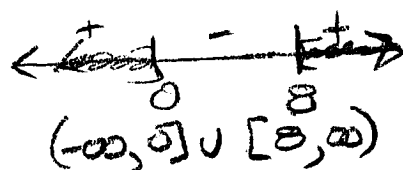
③ $x^2 + Kx + 2K = 0$
 $a=1$ $b=K$ $c=2K$

$$b^2 - 4ac \geq 0$$

$$K^2 - 4(1)(2K) \geq 0$$

$$K^2 - 8K \geq 0$$

$K(K-8) \geq 0$
 $K=0$ $K=8$



④ $Kx^2 + 4x + K = 0$
 $a=K$ $b=4$ $c=K$

$$b^2 - 4ac \geq 0$$

$$(4)^2 - 4(K)(K) \geq 0$$

$$16 - 4K^2 \geq 0$$

$$4K^2 - 16 \leq 0$$

$$4(K^2 - 4) \leq 0$$

$$4(K-2)(K+2) \leq 0$$

$K=2$ $K=-2$

